

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference P804008/WO/1	<b>FOR FURTHER ACTION</b>		See item 4 below
International application No. PCT/DE2005/000137	International filing date ( <i>day/month/year</i> ) 29 January 2005 (29.01.2005)	Priority date ( <i>day/month/year</i> ) 31 January 2004 (31.01.2004)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant MTU AERO ENGINES GMBH			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
2. This REPORT consists of a total of 8 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input checked="" type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input type="checkbox"/>	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).

		Date of issuance of this report 18 October 2006 (18.10.2006)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland		Authorized officer  Ellen Moyse
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**PATENT COOPERATION TREATY**

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

**TRANSLATION**  
**PCT**

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

<p>Applicant's or agent's file reference <b>P804008/WO/1</b></p> <p>International application No. <b>PCT/DE2005/000137</b></p> <p>International Patent Classification (IPC) or both national classification and IPC <b>F01D15/10, F02C3/10, F02K3/04, F02K3/06</b></p> <p>Applicant <b>MTU AERO ENGINES GMBH</b></p>		<p>Date of mailing (day/month/year) <b>See Form PCT/ISA/210 (sheet 2)</b></p> <p><b>FOR FURTHER ACTION</b> See paragraph 2 below</p> <p>International filing date (day/month/year) <b>29.01.2005</b></p> <p>Priority date (day/month/year) <b>31.01.2004</b></p>
<p>1. This opinion contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion  <input checked="" type="checkbox"/> Box No. II Priority  <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  <input type="checkbox"/> Box No. IV Lack of unity of invention  <input checked="" type="checkbox"/> Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement  <input type="checkbox"/> Box No. VI Certain documents cited  <input type="checkbox"/> Box No. VII Certain defects in the international application  <input type="checkbox"/> Box No. VIII Certain observations on the international application</p> <p>2. <b>FURTHER ACTION</b> If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered. If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later. For further options, see Form PCT/ISA/220.</p> <p>3. For further details, see notes to Form PCT/ISA/220.</p>		

<p>Name and mailing address of the ISA/EP</p> <p>Facsimile No.</p>	<p>Authorized officer</p> <p>Telephone No.</p>
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Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
 This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
 a sequence listing  
 table(s) related to the sequence listing
  - b. format of material  
 in written format  
 in computer readable form
  - c. time of filing/furnishing  
 contained in the international application as filed.  
 filed together with the international application in computer readable form.  
 furnished subsequently to this Authority for the purposes of search.
3.  In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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Box No. II Priority

1.  The following document has not yet been furnished:
  - copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
  - translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.
2.  This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43bis1 and 64.1) is the claimed priority date.

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Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																									
<p>1. Statement</p> <table> <tr> <td>Novelty (N)</td> <td>Claims</td> <td>2-8, 10, 12</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td>1, 9, 11</td> <td>NO</td> </tr> <tr> <td>Inventive step (IS)</td> <td>Claims</td> <td>2-4, 7-8, 10, 12</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td>1, 5, 6, 9, 11</td> <td>NO</td> </tr> <tr> <td>Industrial applicability (IA)</td> <td>Claims</td> <td>1-12</td> <td>YES</td> </tr> <tr> <td></td> <td>Claims</td> <td></td> <td>NO</td> </tr> </table>			Novelty (N)	Claims	2-8, 10, 12	YES		Claims	1, 9, 11	NO	Inventive step (IS)	Claims	2-4, 7-8, 10, 12	YES		Claims	1, 5, 6, 9, 11	NO	Industrial applicability (IA)	Claims	1-12	YES		Claims		NO
Novelty (N)	Claims	2-8, 10, 12	YES																							
	Claims	1, 9, 11	NO																							
Inventive step (IS)	Claims	2-4, 7-8, 10, 12	YES																							
	Claims	1, 5, 6, 9, 11	NO																							
Industrial applicability (IA)	Claims	1-12	YES																							
	Claims		NO																							
<p>2. Citations and explanations:</p> <p>1 Reference is made to the following documents:</p> <p>D1: US 5 376 827 A (HINES ET AL) 27 December 1994</p> <p>D2: US 2002/122723 A1 (CARE IAN C. D ET AL) 5 September 2002</p> <p>D3: US-A-2 853 638 (BONNANO JOSEPH L ET AL) 23 September 1958</p> <p>2 INDEPENDENT CLAIM 1</p> <p>2.1 The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claim 1 is not novel within the meaning of PCT Article 33(2).</p> <p>Document D1 discloses (the references between parentheses apply to this document) a stationary gas turbine (10) comprising at least one compressor (18, 20), at least one combustion chamber (22), at least one turbine (24, 26), and a generator (16, 52A) for generating electrical energy, wherein the generator (16, 52A) comprises at least one stator (46, 56A) and at least one rotor (46, 54A), wherein the rotor (46, 56A) of</p>																										

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the generator (16) is embodied as a double free-wheeling generator turbine (14) that is driven by a gas flow in such a way that it rotates in relation to the respective stator (48, 56A) of the generator and thus generates electrical energy from the kinetic energy of the gas flow.

3 DEPENDENT CLAIMS 5, 6, 9, 11

Claims 5, 6, 9, 11 do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT requirements for novelty and inventive step.

The subject matter of claim 5 differs from the known gas turbine. D1 does not disclose whether the or each rotor (46, 54A), embodied as free-wheeling generator turbine (14), of the or each generator (16, 52A) comprises a plurality of rotating blades (36, 40) with pole pieces associated with the blades (36, 40).

The problem addressed by the present invention can therefore be considered that of simplifying the generator construction.

The solution suggested in claim 5 of the present application cannot be considered inventive for the following reasons (PCT Article 33(3)):

In regard to this feature, document D2 (as well as D3 independently thereof) describes the same

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advantages as the present application (see figure 5). A person skilled in the art would therefore consider the inclusion of this feature in the gas turbine described in D1 to be a routine design measure for solving the problem of interest.

The additional features of claim 6, which refers to claim 5, are also known from D2 and D3, whereby the subject matter of dependent claim 6 does not meet the PCT requirements for inventive step.

D1 likewise discloses all additional features of dependent claim 9, namely that the generator comprises a plurality of generator stages (16, 52A), wherein each generator stage (16, 52A) is formed by a rotor (46, 54A), embodied as a free-wheeling generator turbine, and by an associated stator (48, 56A). The subject matter of dependent claim 9 is therefore not novel.

D1 also discloses all additional features of dependent claim 11, namely that the generator (16, 52A) is positioned downstream of a low pressure turbine (26) of the gas turbine (10), kinetic energy of the gas flow leaving the low pressure turbine (26) thereby being converted to electrical energy. The subject matter of dependent claim 11 is therefore not novel.

4 DEPENDENT CLAIMS 2-4, 7, 8, 10, 12

The combination of features contained in dependent claims 2-4, 7, 8, 10, 12 is neither known nor

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

suggested by the available prior art and is therefore novel and inventive.

5 Correction of significant errors:

The dependent claim was written in particular in reference to claim 1, whose subject matter does not include the fan module, however. This feature is first mentioned in claim 2. In claim 3, the reference to claim 1 should therefore be deleted.

According to the last line of page 4 of the description, the mistyped word "small" (German: "gering") in claim 8 should be understood as "smaller" (German: "geringere") and should be replaced by it.